



TG452B Series

Battery Backed Edge Gateways

Introduction

TG452B is a programmable industrial edge gateway designed to connect sensors, meters, controllers, and other industrial devices into a unified system. With rich interfaces including RS232/RS485, I/O, CAN*, Ethernet, Wi-Fi, and GNSS, it provides a flexible and cost-effective solution for industrial IoT applications.

Supporting 4G LTE and optional 5G cellular connectivity, TG452B features dual SIM, WAN and WWAN failover for reliable connectivity. It supports a removable, rechargeable 18650, 3.7V Li-ion battery for backup power during outages, helping maintain data storage, event logging, alarms, and monitoring functions to minimize data loss and missed alerts.

Powered by Bivocom OS with optional Ubuntu*, TG452B supports Node-RED, Python, and C/C++ for customized edge applications. With support for Modbus, MQTT, OPC UA*, IEC 101/104/61850*, DNP3*, BACnet IP/MSTP*, and other industrial protocols, it enables seamless integration across BESS, telecom site monitoring, fleet management, HVAC, building automation, power & water utilities, and smart agriculture.

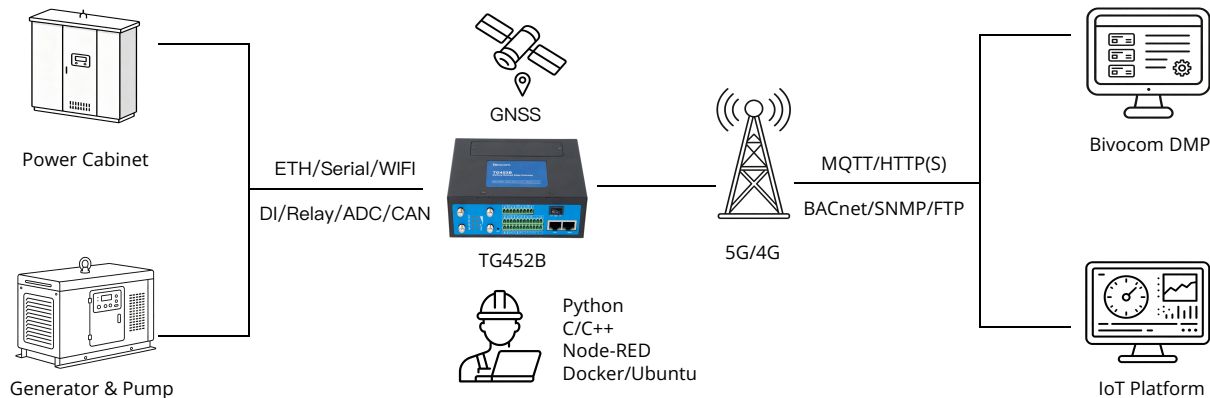
Key Features

- 4G LTE, or 5G RedCap (Optional), Dual SIM
- 2-ETH, 1-RS232, 2-RS485, 2-DI, 6-ADC, 3-Relay, 1-TF Slot, 1-CAN*, 2-DC Power Output, 2.4G WIFI, GNSS
- 18650, 3.7V Li-ion Battery slot for power backup
- Programming Bivocom OS: C/C++, Python, Node-RED, Ubuntu*, Docker*
- Modbus RTU/TCP, JSON, BACnet IP/MSTP*, OPC UA*, IEC 101/104/61850*, DNP3* and customized industrial protocols
- MQTT, FTP*, HTTP(S), Wireguard, Tailscale*, SNMP*, Telnet, SSH

Applications

- HVAC
- Telecom Sites
- BESS
- Industry 4.0
- Water & Waste Water
- Oil & Gas
- Power
- Weather Station

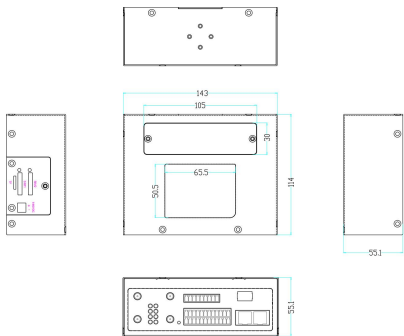
Diagram



Specifications

Systems		Power	
CPU	32-bit ARM Cortex A7	Input	5-60VDC
Flash	1GB (8GB Optional)	Standard Power	12VDC/1.5A
RAM	256MB (512MB Optional)	Idle Mode*	220~265mA@12VDC
Cellular		Working Mode*	280~330mA@12VDC
Antenna	2 x 50 Ω SMA-K	Backup Battery*	1 x 18650, 3.7 V Li-ion
SIM Slot	2 Mini SIM (2FF)	Note: Battery not included; sold separately.	
Ethernet		Physical Characteristics	
Ports	2 x 10/100 Mbps 1 x WAN, 1 x LAN, or 2 x LAN Configurable	IP Rating	IP30
Serial		Housing & Weight	Metal, 829g (1.83lbs), without accessories
Ports	1 x RS232, 2 x RS485	Dimensions	143 x 114 x 55.10mm (5.63 x 4.49 x 2.17in)
Baud Rate	1200bps to 230400bps	Mounting	Desktop, DIN-Rail
I/O		Environmental	
Digital Input	2-DI (Isolation, Dry contact), Optional Wet contact (Status "1": 0-3V, Status "0": 5-30V)	Operating Temp.	-35° C to +75° C (-31°F to +167°F)
Relay Output	3-Relay (COM+NO+NC, Up to 5A, 30VDC/250VAC switch)	Storage Temp.	-40° C to +80° C (-40°F to +176°F)
Analog Input	6 x 12-bit (4-20mA/0-5V Configurable)	Relative Humidity	5% to 95% (non-condensing)
CAN (Optional)	1, CAN2.0B, SAE J1939*	Others	
Power Output*	1 x 12VDC/1A and 1 x 5VDC/1A for powering field sensors & devices Note: Disabled on battery mode	Reset Button	1
Wi-Fi		LED Indicators	Power, WIFI, System, Alarm, Online, Signal
Antenna	1 x 50 Ω RP-SMA-J	Built-in	Watchdog, RTC, Timer
Standard	IEEE 802.11b/g/n, AP/Client modes	Approvals	CE*, RCM*, FCC*
Bands	2.4GHz	Warranty Period	Standard: 2-Year limited warranty Extended: 3-5 Years
Security	Open, WPA, WPA2, Radius	Software	
GNSS		Programming	Bivocom OS (OpenWrt based Linux OS, Or Optional Ubuntu OS) C/C++, Python, Node-RED, Docker(Ubuntu)*, LUA* and SDK
Module	GNSS from cellular module	Data Protocols	Modbus RTU/TCP, SMS, SNMP*, IEC101/104*, IEC61850*, DNP3*, BACnet IP/MSTP*, OPC UA*, etc.
Antenna	1 x 50 Ω SMA-J	Network Protocols	VXLAN, GNSS, IPV6*, DDNS, DNS, ARP, Static Routing, NAT, Firewall, Telnet/SSH, PPP, PPPoE, DHCP, ICMP, NTP, etc.
External Storage		Server Supported VPN	MQTT, HTTP(S), Transparent TCP/UDP, FTP* Wireguard/OpenVPN/IPsec/PPTP/L2TP/ Tailscale*
TF Slot	1 x Micro SD slot, Up to 32GB	Firewall	ACL/DMZ/Port Mapping/MAC Binding
Usage	User Program and Data Storage	Management	Web, CLI, SMS, Bivocom DMP (Device Management Platform)*
		Reliability	Dual SIM*, WWAN and WAN Failover, Hardware & Software Watchdog

Dimensions



Ordering Information

Model	Part Number	Cellular	Frequency Bands	Package Contents
TG452B-LF	TG452B - L <1><2> - <3>	4G LTE	4G LTE CAT 4* (Optional Global or Regional Version) • EMEA/Asia: B1/B3/B5/B7/B8/B20/B38/B40/B41 • ANZ/LATAM: B1/B3/B5/B7/B8/B28 • NA: B2/B4/B5/B12/B13/B14	1. TG452B x 1 2. Cellular Antenna x 2 3. WiFi Antenna x 1 4. GNSS Antenna x 1 5. Ethernet Cable x 1 6. 12-Pin Terminal Block x 2 7. 9-Pin Terminal Block x 1 8. 2-Pin Terminal Block x 1 9. DIN-Rail Mount Kit x 1 10. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG452B-RC	TG452B - RC <1><2> - <3>	5G RedCap	5G NR Sub-6 SA* (Optional Global or Regional Version) • n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79 • LTE FDD B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/70/71 • LTE TDD B34/38/39/40/41/42/43/48	
Part Number: <1>: 5G or 4G module for different countries and regions <2>: DS=Dual SIM Single Module <3>: W=2.4G WIFI GN=GNSS from cellular module				

Note:

1. Region-specific cellular modules are available; consult Bivocom sales for details.
2. Compiler & SDK are provided for secondary development. Ubuntu require dedicated hardware&firmware (8GB Flash version)
3. DSSM: Dual-SIM single-module design with automatic network failover; DSDM: Dual-SIM dual-module design supporting load balancing.
4. Bivocom DMP (Device Management Platform) requires a license fee.
5. *Optional functions rely on matching hardware/firmware versions; not all features supported on one device.
6. Power consumption is measured under laboratory conditions and is for reference only.
7. Product doesn't come with battery, it's sold separately.
8. *Listed certifications are pending.
9. Extended warranty pricing varies.
10. Digital user manuals are free to download from [Bivocom](#) official website for environmental protection.

About Bivocom

Founded in 2014, Bivocom specializes in industrial IoT communication technology. Our comprehensive product portfolio covers IoT sensors, cellular gateways, industrial routers, RTUs, modems, as well as self-developed IoT cloud management platforms. We deliver ruggedized industrial wireless hardware, full-lifecycle OEM/ODM customization services and end-to-end IoT connectivity one-stop solutions to industrial partners worldwide.

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